ARADHYA SRIVASTAVA

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EDUCATION

B.E., Electrical and Electronics Engineering (Minor in Computing and Intelligence) — Expected July 2026
BITS Pilani, Hyderabad Campus — **7.17 CGPA**

Relevant coursework: Data Structures and Algorithms, Operating Systems, Object-Oriented Programming, Computer Programming, Database Management Systems, Machine Learning, Neural Networks, Probability and Statistics

TECHNICAL SKILLS

Programming: C, C++, Python, Java, SQL, HTML, CSS
Technologies: Numpy, Pandas, Scikit-learn, Java Swing (GUI), MySQL, Matplotlib, TensorFlow, PyTorch, Keras, Flask

PROFESSIONAL EXPERIENCE

NHPC Ltd, Faridabad, Haryana: Summer Intern — **May 2024 – July 2024**

- Developed a **time-series forecasting model** in Python to predict daily hydropower generation, utilizing **XGBoost** with engineered lag and rolling average features to accurately capture temporal patterns in sensor data.
- Conducted rigorous **model validation** by benchmarking multiple regression algorithms (e.g., **Linear Regression**, **XGBoost**), achieving a **99.2% R-squared** and low **RMSE** to enhance operational foresight for grid management.

PROJECTS

Text Prediction using LSTM - Neural Networks and Federated Learning — **August 2024 – December 2024**

- Architected an end-to-end privacy-preserving **Federated Learning** pipeline in **Python** and **TensorFlow/Keras**, deploying client-side **LSTM models** and implementing the weighted **Federated Averaging (FedAvg) algorithm**.
- Achieved **87%+ global model accuracy** on a held-out test set after just **50 training rounds**, successfully building a robust predictive model while ensuring all sensitive user data remained fully decentralized and private.

Port Scheduler C -POSIX-IPC -Threads-Operating Systems — **August 2024 – December 2024**

- Developed a real-time scheduler for **12,000+** ships using **shared memory** and **5+ message queues** for efficient inter-process coordination, applying **IPC and synchronization primitives**.
- Optimized dock-crane assignment across **30 docks**, enhancing scheduling efficiency under strict **OS-level synchronization**.
- Streamlined **8-threaded** brute-force logic to decode 100-character secure undocking strings within execution time limits, demonstrating expertise in **POSIX threads and concurrency control**.

Company Management System-Database Management Systems — **August 2024 – December 2024**

- Engineered and implemented a **relational database** in **MySQL**, designing a normalized schema and authoring complex **SQL** queries (using **JOINs**, **subqueries**, and **aggregate functions**) to enforce data integrity and support **CRUD** operations across five business modules.
- Formulated a transactional inventory system by leveraging advanced DBMS features like **stored procedures** and triggers to automate stock updates, ensuring **ACID** compliance and maintaining high **data consistency** during order processing.

Hybrid Recommendation Engine - Machine Learning and Data Processing — **January 2025– May 2025**

- Engineered a hybrid recommendation engine processing a custom music dataset, integrating content-based filtering (**TF-IDF**, **Cosine Similarity**) with collaborative filtering (**SVD-based Matrix Factorization**) to generate personalized suggestions.
- Architected an end-to-end pipeline implementing robust data preprocessing and feature engineering in **Pandas** and **Scikit-learn**—including synthetic rating generation to augment sparse data—and deploying the model for real-time inference via **Flask REST API**.

Hand Gesture Recognition using CNN — Machine Learning and Neural Networks — **August 2024 – December 2024**

- Built and trained a **Convolutional Neural Network (CNN)** for hand gesture recognition in **American Sign Language (ASL)**, ultimately achieving **98%** validation accuracy in classifying letters from a custom dataset of grayscale images.
- Redesigned the model architecture by adjusting **convolutional**, **pooling,** and **dropout layers** to mitigate **overfitting**, which cut training time by **40%** and doubled real-time prediction throughput without sacrificing classification performance.

EXTRACURRICULAR ACTIVITIES

Crimson Curtain - Dramatics Club, BITS Pilani, Hyderabad Campus: Treasurer — **August 2023 – July 2024**

- Administered a **1.75 lakhs** annual budget, ensuring strategic fund allocation and financial transparency .
- Directed budgeting and logistics for **9** stage plays, **4** mono acts, and a Street Play delegation to **BITS Goa's Waves**, collaborating closely with **20+** members to deliver impactful productions and significantly boost inter-college participation.